

# THE MINERAL INDUSTRY OF

# BOTSWANA

By Philip M. Mobbs

Botswana is Africa's largest and the world's second largest producer of diamond (Balazik, 1999). The mineral industry provided about 80% of the value of national exports and about 50% of Government revenue. The mining sector, mostly on the strength of diamond, accounted for about 33% of the gross domestic product (Commonwealth Africa Investment Almanac, 1998, Botswana, accessed on July 2, 1999, at URL

[http://www.tcol.co.uk/caia/part\\_3/countries/botswana/botinvest1.html](http://www.tcol.co.uk/caia/part_3/countries/botswana/botinvest1.html)). Nickel and copper production also played significant though smaller roles in the national economy.

Much of Botswana's economic growth since the 1970's could be attributed to the country's successful program of mineral exploration and development. In 1998, however, Botswana's economic growth stalled as the Asian economic crisis significantly reduced the international demand for diamond (Agence France-Presse, June 29, 1998, Botswana stockpiles diamonds in face of weak market, accessed August 21, 1998, at URL <http://www.afp.com/go/english/countries/page.phtml?id=botswana/light/980629190528.qd8pyuw6&name=Botswana>).

## Trade

In 1998, diamond exports from Botswana were valued at \$1.4 billion compared with \$2.1 billion<sup>1</sup> in 1997. Asia had accounted for a significant proportion of international diamond sales. Because of the downturn in demand associated with the Asian economic crisis, the Central Selling Organisation of the United Kingdom, a subsidiary of De Beers Centenary AG, placed quota restrictions on diamond sales, forcing Botswana to stockpile a portion of its diamond production.

## Government Policies and Programs

Under the National Development Plan 8 for the period from 1997 to 2003, the Government was formally seeking to diversify the national economy and reduce its dependence on diamond production. In 1998, the Mines and Minerals Act (Chapter 66:01) was amended. The Government encourages foreign investment, and there were no restrictions on reinvestment or repatriation of earnings and capital. The Ministry of Minerals, Energy, and Water Affairs has responsibility for the mining sector.

## Structure of the Mineral Industry

The Government and Anglo American Corp. of South Africa Ltd. (AAC) were significant partners in Botswana's mineral

<sup>1</sup>Where necessary, values have been converted from Botswana Pula (P) to U.S. dollars at the average rate of P4.217=US\$1.00 for 1998 and P3.635=US\$1.00 for 1997.

industry. De Beers, an AAC-affiliated company, owned one-half of Debswana Diamond Co. (Proprietary) Ltd. AAC had an equity interest in Botswana RST Ltd., which was the Government's partner in BCL Ltd., the nickel-copper-cobalt producer. AAC holdings also included substantial interests in Tati Nickel Mining Co. (Proprietary) Ltd. and Morupule Colliery (Proprietary) Ltd.

Besides AAC-associated Debswana and Botswana Ash (Proprietary) Ltd. operations, the Botswana mining industry consisted of a number of medium- and small-scale mines producing agate, aggregates, brickmaking clay, gold, and dimension stone.

## Commodity Review

### Metals

**Cobalt, Copper, and Nickel.**—BCL operated cobalt-copper-nickel mines and a smelter at Selebi-Phikwe, about 350 kilometers (km) northeast of the capital of Gaborone. In addition to treating its own ore, BCL toll-smelted concentrate and ore for Tati Nickel. Total smelter output of about 50,000 metric tons per year of cobalt-copper-nickel matte was shipped to Norway and Zimbabwe for refining. As nickel prices dropped during 1998, it was reported that BCL would require Government financial support in 1998 and 1999 (Metal Bulletin, 1998).

Exploration drilling by Tati Nickel confirmed the presence of additional copper and nickel resources. LionOre Mining International Ltd. of Australia reported that Tati Nickel's sulfide ore resources were estimated to be 50.9 million metric tons of ore grading 0.67% Ni and 0.35% Cu using a 0.3% cutoff grade (LionOre Mining International Ltd., September 16, 1998, Substantial increase in nickel resources—Botswana, accessed October 26, 1998, at URL <http://www2.cdn-news.com/scripts/ccn-release.pl?1998/09/16/0916028n>). In 1998, Tati Nickel installed a new fines circuit and completed a prefeasibility study for a new concentrator. With the increase of resources, Tati Nickel commenced a feasibility study on the installation of the new concentrator. Tati Nickel produced 6,427 metric tons (t) of nickel and 2,512 t of copper in 1998.

Cardia Mining NL of Australia and Mineral Holdings Botswana (Pty.) Ltd. were exploring on the Magogaphate base metals property. Fancamp Resources Ltd. of Canada was looking for joint-venture partners for its prospects in Botswana. On July 4, 1998, the Government's suspension of production order encompassing the Thakadu/Makala copper mining lease of Professional Property Projects (Pty.) Ltd., a subsidiary of Griffin Mining Ltd. of Bermuda (formerly European Mining Finance Ltd.) expired.

**Gold.**—Ashanti Goldfields Co. Ltd. of Ghana was exploring the Kraaipan gold project of Reunion Mining Botswana Ltd., a subsidiary of Reunion Mining Plc of the United Kingdom, and First Quantum Minerals Ltd. of Canada. Gallery Gold NL of Australia, formerly Gallery Resources NL, continued gold exploration and acquired an option on the Signal Hill prospect. Trillion Botswana (Proprietary) Ltd., a subsidiary of Trillion Resources Ltd. of Canada, held a number of prospecting licenses. Bushman Resources Inc. of Canada and Lion Mining Finance Ltd. of the United Kingdom terminated their respective options on Trillion's Kalahari gold prospect in early 1998.

### **Industrial Minerals**

**Diamond.**—Debswana recovered diamond from the Jwaneng, the Letlhakane, and the Orapa Mines. Production was sold to the Central Selling Organisation. The \$440 million expansion of the Orapa diamond mine to a production capacity of about 12 million carats continued (African Mining, 1997).

A number of international mining companies held diamond licenses; these included the joint venture of AfriOre (Botswana) (Pty.) Ltd., a subsidiary of AfriOre (Mauritius) Ltd., and Billiton Plc of the United Kingdom; Gope Exploration Co., the joint venture of De Beers Prospecting Botswana (Pty.) Ltd. and the Botswana subsidiary of Falconbridge Ltd. of Canada; Fancamp Resources Ltd. of Canada; and Freewest Resources Canada Inc.

Auridiam Botswana (Proprietary) Ltd. (57.5%), a subsidiary of Auridiam Consolidated NL of Australia; Livre Holdings (Proprietary) Ltd., a subsidiary of Diamond Ventures NL of Australia (40%); and Nomathata Diamonds Inc. (2.5%) were exploring on the Mmashoro diamond property. Auridiam, M.I.T. Ventures Corp. of Canada, and Nomathata were exploring the Orapa licence. The Canadian joint venture of Contiki Resources Ltd., Layfield Resources Inc., and Southern Africa Minerals Corp. drilled the Molopo diamond license. Menora Resources Inc. of Canada continued exploration of the Tshane prospect. Redaurum Ltd. of Canada and Diamond Ventures Exploration (Pty.) Ltd., a subsidiary of Diamond Ventures NL, was exploring on the Orapa North diamond exploration lease.

Reunion and Ashton Mining Ltd. of Australia drilled the Ngami diamond prospect. Trillion Resources Ltd. of Canada was exploring on the Shashi diamond licence with Skeena Resources Ltd. and Nickelodeon Minerals Inc., both of Canada. TNK Resources Inc. of Canada and De Beers Prospecting Botswana (Pty.) Ltd. formed a joint venture to explore four areas on TNK's Gope area diamond license.

In 1998, Botswana Diamondfields Inc. of Canada discontinued work on the Deception Pan, the Mopipi, and the Tswapong area licences after discouraging results from sampling programs. Southern Africa Minerals drilled the Mosomane prospect, and relinquished most of the Kokong and the Mabuesehube diamond licences. Trillion and Winspear Resources Ltd. of Canada relinquished their Sowa Pan diamond license and Trillion allowed the Mmadinare gemstone lease to expire in 1998.

The Schacter & Namdar Group acquired 60% equity interest in the diamond cutting and polishing facility at Molepolole of Lazare Kaplan Botswana (Pty.) Ltd. for \$11.1 million (Yahoo,

March 2, 1998, Schacter & Namdar buys Kaplan factory in Botswana, accessed March 3, 1998, at URL [http://biz.yahoo.com/bw/980302/schacter\\_a\\_1.html](http://biz.yahoo.com/bw/980302/schacter_a_1.html)).

### **Infrastructure**

Transportation facilities were good on the eastern fringe of the country, and in 1998, the 850-km Trans-Kalahari highway was opened from Gaborone, Botswana, to Gobabis, Namibia. Highways also connected landlocked Botswana with South Africa and Zimbabwe. A single-track railroad, operated by Botswana Railways, ran from north to south through the eastern part of the country connecting the South African and the Zimbabwean rail systems.

### **Outlook**

The country's favorable geologic environment, mineral investment climate, political stability, and low tax rates should continue to make Botswana a target for foreign mineral investment. Declining international commodity prices in 1998 will add impetus to the Government's drive to diversify the national economy and to reduce its reliance on the diamond industry.

### **References Cited**

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### **Major Sources of Information**

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### **Major Publications**

- Carney, J.M., Aldiss, D.T., and Lock, N.P., 1994, The geology of Botswana: Geology Survey Department, Gaborone, Botswana, 113 p.  
Department of Mines Annual Report. Republic of Botswana, Gaborone, annual.  
———[undated], Mineral development and investment opportunities: Gaborone, Department of Mines, 10 p.

TABLE 1  
BOTSWANA: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity 2/	1994	1995	1996	1997	1998	
Coal, bituminous	900,298	898,383	763,240	776,920	780,000 e/	
Cobalt, smelter output, Co content of matte 3/ 4/	225	270	408	348	335	
Copper:						
Mine output, Cu content of ore milled	27,500 e/	24,700 e/	25,275	22,840	25,043	
Smelter output, Cu content of matte 3/ 4/	22,780	20,500	20,980	19,820 r/	22,124	
Diamond 5/	thousand carats	15,550	16,802	17,388	20,111	19,772
Gemstones, semiprecious 6/	kilograms	67,000	20,000	35,000	54,000	54,000 e/
Gold 7/	do.	234	86	5	28	1
Nickel:						
Mine output, Ni content of ore milled	19,042	22,100 e/	21,910	19,860	21,700 e/	
Smelter output, matte, gross weight 3/	51,488	49,931	58,910	50,570	56,732	
Smelter output, Ni content of matte 4/	19,041	18,100	17,460	20,157 r/	22,851	
Salt 8/	186,000	208,126	93,886	184,530	214,700	
Sand, construction 9/	cubic meters	140,000	112,000	100,000	110,000 r/	90,000 e/
Soda ash, natural	174,000	201,657	119,137	199,990	195,500	
Stone, crushed	cubic meters	572,000	860,737	845,526	1,091,880	1,000,000 e/

e/ Estimated. r/ Revised.

1/ Table includes data available through August 27, 1999.

2/ In addition to commodities listed, clay for brick and tile, and silver were produced, but information was inadequate to reliably estimate output.

3/ Smelter product was granulated nickel-copper-cobalt matte.

4/ Included some product from direct smelting ore; that is, ore not reported as milled.

5/ Assumed to contain about 70% gem and near gem.

6/ Presumably, principally agate. Reported as sales.

7/ Reported as bullion; historically included silver estimated to be about 2%.

8/ From natural soda ash production.

9/ Additional production of sand and gravel from small local operations was periodically reported, but information was inadequate to estimate output.

TABLE 2  
BOTSWANA: STRUCTURE OF THE MINERAL INDUSTRY IN 1998

(Metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Clay 1/		Lobatse Clay Works (Proprietary) Ltd. (Botswana Development Corp. and Interkiln Corp. joint venture)	Lobatse, 70 kilometers south-southwest of Gaborone	50,000 e/
Do.		Makoro Brick and Tile (Proprietary) Ltd.	Makoro, 10 kilometers south of Palapye	20,000 e/
Coal		Morupule Colliery (Proprietary) Ltd. (Anglo American Corp. of South Africa Ltd. and related firms, 93.3%)	Morupule, 270 kilometers north-southwest of Gaborone	1,000,000
Cobalt 2/		BCL Ltd., (Government, 15%; Botswana RST Ltd., 85%)	Selebi-Phikwe, 350 kilometers northeast of Gaborone	500
Copper 2/		do.	do.	26,000
Copper ore		do.	do.	1,800,000
Do.		Tati Nickel Mining Co. (Proprietary) Ltd. (Lexan Trading Inc., 3/ 43%; Francistown Mining and Exploration Ltd., 4/ 42%; and Government, 15%)	Selkirk Mine, 23 kilometers east of Francistown and Phoenix Mine, near Francistown	1,560,000 5/
Diamond	thousand carats	Debswana Diamond Co. (Proprietary) Ltd. (Government, 50%; De Beers Centenary AG, 50%)	Jwaneng Mine, 115 kilometers west of Gaborone. Orapa Mine, 375 kilometers north of Gaborone. Letlhakane Mine, 350 kilometers north of Gaborone.	13,000 7,000 900
Do.	do.	Tswapong Mining Co. (Proprietary) Ltd. (De Beers Prospecting Botswana Ltd., 85%; Government, 15%)	Tswapong Mine, 275 kilometers northeast of Gaborone.	3 e/ 6/
Gemstones, semiprecious	kilograms	Agate Botswana (Proprietary) Ltd.	Processing plant at Pilane, 45 kilometers north of Gaborone	60,000
Do.	do.	Masa Precious Stones (Proprietary) Ltd.	Bobonong, east of Selebi-Phikwe	4,000
Nickel 2/		BCL Ltd., (Government, 15%; Botswana RST Ltd., 85%)	Selebi-Phikwe, 350 kilometers northeast of Gaborone	23,000
Nickel ore		do.	do.	1,800,000
Do.		Tati Nickel Mining Co. (Pty.) Ltd. (Lexan Trading Inc., 3/ 43%; Francistown Mining and Exploration Ltd., 4/ 42%; and Government, 15%)	Phoenix Mine, near Francistown Selkirk Mine, near Francistown	1,500,000 7/ 60,000 8/
Salt		Botswana Ash (Proprietary) Ltd. (Government, 50%; Anglo American Corp. of South Africa Ltd., 50%)	Sua Pan, 450 kilometers north of Gaborone	650,000
Soda ash		do.	do.	300,000

e/ Estimated.

1/ For brick and tiles.

2/ In nickel-copper-cobalt smelter matte.

3/ Subsidiary of Anglo American Corp. of South Africa Ltd.

4/ Subsidiary of LionOre Mining International Ltd. of Canada.

5/ Copper content estimated at 1.5%.

6/ Production began in September 1997.

7/ Phoenix Mine ships about 100,000 metric tons of concentrate grading about 5.5% nickel per year.

8/ Direct smelting ore grading about 2.6% nickel.